

# **Prevention of Significant Air Quality Deterioration Review**

## **Final Determination**

June 26, 2020

Facility Name: US Cement, LLC  
City: Perry  
County: Houston  
AIRS Number: 04-13-153-00075  
Application Number: 27266  
Date Application Received: October 10, 2019



State of Georgia  
Department of Natural Resources  
Environmental Protection Division  
Air Protection Branch

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## **BACKGROUND**

On October 7, 2019, US Cement, LLC (hereafter US Cement) submitted an application for an air quality permit to construct and operate a portland cement manufacturing facility. The facility is located at 329 AE Harris Rd in Perry, Houston County. The plant consists mainly of an on-site limestone-clay quarry, raw material handling and storage, kiln feed preparation with an in-line raw mill, a dry process rotary kiln coupled with preheater and calciner, a clinker cooler, a coal mill, a finish mill, and cement storage, packaging and shipping operations.

On May 5, 2020, the Division issued a Preliminary Determination stating that the modifications described in Application No. 27266 should be approved. The Preliminary Determination contained a draft Air Quality Permit for the construction and operation of the modified equipment.

The Division requested that US Cement place a public notice in a newspaper of general circulation in the area of the existing facility notifying the public of the proposed construction and providing the opportunity for written public comment. Such public notice was placed in *The Houston Home Journal* (legal organ for Houston County) on May 13, 2020. The public comment period expired on June 12, 2020.

During the comment period, comments were received from U.S. EPA Region IV and the facility. There were no comments received from the general public.

A copy of the final permit is included in Appendix A. A copy of written comments received during the public comment period is provided in Appendix B.

### **U.S. EPA REGION 4 COMMENTS**

Comments were received from Kelly A. Fortin, Acting Chief, Air Permits Section, U.S. EPA Region 4, by email on May 18, 2020. The comments are typed, verbatim, below and were the result of reviews by Eva Land of U.S. EPA Region 4.

#### **Comment 1**

As stated above, the source is subject to PSD review for GHGs. The Preliminary Determination has included a thorough best available control technology (BACT) review for GHGs from the air heater, raw mill, preheater/precalciner, calciner, kiln, and clinker cooler/main. The numerical BACT limit is listed in the draft permit Condition 3.3.1 and *TABLE 3.3.1: Subpart LLL, Subpart OOO, Subpart Y, Subpart F and BACT Emission Standards*. The tons per year limit for CO<sub>2</sub>e is also included in Condition 3.2.2. However, the draft permit does not include monitoring, recordkeeping, or reporting requirements for CO<sub>2</sub>. EPA recommends that the draft permit include appropriate monitoring, recordkeeping and recording of CO<sub>2</sub> emissions to ensure compliance; EPA suggests that CO<sub>2</sub> should be added to Conditions 5.2.31 and 6.2.1.

In addition, EPA recommends that Condition 3.2.9 specifically include the BACT determination from the Preliminary Determination for CO<sub>2</sub>e, i.e. “good combustion practices, plant design, and raw materials management to the degree practical.”

#### **EPD Response:**

Based on EPA’s request, EPD has decided to modify Conditions 3.2.9, 5.2.31 and 6.2.1 (changed to 6.2.2 following revision) to include CO<sub>2</sub> in order to introduce appropriate monitoring, recordkeeping and recording of CO<sub>2</sub> emissions to ensure compliance. Subsection b.ii. of Condition 6.1.7 was also modified to include CO<sub>2</sub>. In addition, new Conditions 4.2.31, 5.2.32, and 6.2.1 were added to ensure compliance with CO<sub>2</sub> emission limits.

3.2.9 The Permittee shall use the following technologies and/or procedures to comply with the relevant BACT emission limits:  
[40 CFR 52.21 - BACT]

- a. **NO<sub>x</sub>** - Multi-staged combustion (MSC)/staged and controlled combustion (SCC) and NH<sub>3</sub> solution-injection based SNCR to reduce NO<sub>x</sub> emissions. The NH<sub>3</sub> solutions shall be injected at a location with an appropriate temperature profile to support the SNCR process. Indirect firing and low NO<sub>x</sub> burner(s) for reducing NO<sub>x</sub> emissions will also be employed.
- b. **PM** - Fabric filters/baghouses to reduce filterable PM/PM<sub>10</sub>/PM<sub>2.5</sub> emissions from process air and/or flue gas streams exhausting through vents/stacks.

- c. **SO<sub>2</sub> and HCl** – Control of emissions through equipment design/inherent dry scrubbing, and judicious selection/use of raw materials.
- d. **CO and VOC/THC** – Control of emissions through equipment design and combustion process management with good operating practices (i.e., adequate combustion temperature, residence time and excess air), and judicious selection/use of raw materials.
- e. **Hg** – control of emissions by water injection in the downcomer duct to control main baghouse temperature, kiln dust management and activated carbon injection, if needed.
- f. **D/F** – Control of emissions through equipment design and combustion process management with good operating practices (i.e., adequate combustion temperature, residence time and excess air), and water injection in the downcomer duct to control main baghouse temperature.
- g. **CO<sub>2</sub>e** – Control of emissions by good combustion practices, plant design and raw material management to the degree practical.

The Permittee shall include, with the performance test reports as required in Part 4.0 of this permit, written operation, inspection and maintenance procedures and work practice requirements. These procedures and requirements shall be developed to ensure the satisfaction of the operating requirements in this condition, including, for each baghouse, an operation and maintenance (O&M) plan, or as an alternative, the operation and maintenance plan as required in Condition 5.2.1. All inspection and maintenance activities shall be recorded in a permanent form suitable for inspection and submission to the Division.

- 4.2.31 **CO<sub>2</sub> CEMS.** CO<sub>2</sub> and related gas flow monitoring shall be conducted per 40 CFR 98 for Mandatory GHG Reporting.  
[40 CFR 98 Subpart H]
- 5.2.31 The Permittee shall install, calibrate, maintain, and operate CEMS to continuously monitor and record the indicated BACT pollutants discharged from the in-line kiln/raw mill according to manufacturer's specifications and/or the requirements under pertinent EPA or state rules, and in a manner sufficient to demonstrate continuous compliance with the applicable emission standards in this permit. Each CEM shall also meet performance specifications of the Division's monitoring requirements if applicable. The Permittee shall notify the Division within one working day of discovering emissions in excess of a CEM emission standard over a

specified averaging period. BACT pollutant monitoring requirements shall comply with 40 CFR 60.13.

- a. **CO:** 2.9 lb/ton clinker - *30 kiln-operating day average*. The CO CEM shall meet the requirements of Performance Specification 4 or 4A in Appendix B of 40 CFR 60. The required RATA tests shall be performed using EPA Method 10 in Appendix A of 40 CFR 60. Quality assurance procedures shall conform to the requirements of Appendix F in 40 CFR 60.
- b. **NO<sub>x</sub>:** 1.5 lb/ton clinker (2.5 lb/ton of clinker during initial kiln startup period) - *30 kiln-operating day average*. The NO<sub>x</sub> CEM shall meet the requirements of Performance Specification 2 or 2A in Appendix B of 40 CFR 60. The required RATA tests shall be performed using EPA Method 7 or 7E in Appendix A of 40 CFR 60. Quality assurance procedures shall conform to the requirements of Appendix F in 40 CFR 60.
- c. **SO<sub>2</sub>:** 0.4 lb/ton clinker - *30 kiln-operating day average*. The SO<sub>2</sub> CEM shall meet the requirements of Performance Specification 2 in Appendix B of 40 CFR 60. The required RATA tests shall be performed using EPA Method 6 or 6C in Appendix A of 40 CFR 60. Quality assurance procedures shall conform to the requirements of Appendix F in 40 CFR 60.
- d. **VOC:** 0.15 lb/ton clinker - *30 kiln-operating day average*. The THC CEM shall meet the requirements of Performance Specification 8A in Appendix F of 40 CFR 60. The permittee may operate a methane/non-methane CEMS to determine the VOC emissions. The Permittee can demonstrate by annual Method 25A test that a fraction of THC is methane instead of operating methane/non-methane CEMS.
- e. **CO<sub>2</sub>:** 0.95 ton/ton clinker - *annual average*. The CO<sub>2</sub> CEM shall meet the requirements of Performance Specification 3 in Appendix B of 40 CFR 60. The required RATA tests shall be performed using EPA Method 3A in Appendix A of 40 CFR 60. Quality assurance procedures shall conform to the requirements of Appendix F in 40 CFR 60.

The Permittee shall perform quarterly accuracy determinations and daily calibration drift tests on all BACT-required CEM, including the oxygen and flow CMS, according to Procedure 1 in Appendix F of 40 CFR Part 60.

- 5.2.32 The Permittee shall operate a CO<sub>2</sub> CEMS as specified in 40 CFR 98.83 to report GHG emissions. The quantity of clinker must be monitored for purposes of GHG emissions per 40 CFR 98.84(d). Therefore, whenever a quality-assured value of a required parameter is unavailable, a substitute data value for the missing parameter shall be used in the calculations. The Permittee must document and keep records of the procedures used for all such estimates. If the CEMS approach is used to determine combined process and combustion CO<sub>2</sub> emissions, the missing data procedures in 40 CFR 98.35 apply. For each missing value of monthly clinker production the substitute data value must be the best available estimate of the monthly clinker production based on information used for accounting purposes, or use the maximum tons per day capacity of the system and the number of days per month.  
[40 CFR 52.21-BACT, 40 CFR 98.83, 40 CFR 98.84, 40 CFR 98.85]

- 6.1.7 For the purpose of reporting excess emissions, exceedances or excursions in the report required in Condition 6.1.4, the following excess emissions, exceedances, and excursions shall be reported:  
[391-3-1-.02(6)(b)1]

- a. Excess emissions: (means for the purpose of this condition and Condition 6.1.4, any condition that is detected by monitoring or record keeping which is specifically defined, or stated to be, excess emissions by an applicable requirement)

None Applicable.

- b. Exceedances: (means for the purpose of this condition and Condition 6.1.4, any condition that is detected by monitoring or record keeping that provides data in terms of an emission limitation or standard and that indicates that emissions (or opacity) do not meet the applicable emission limitation or standard consistent with the averaging period specified for averaging the results of the monitoring)
- i. Any time the production rate of the kiln exceeds 140 tons per hour of clinker (30-kiln operating day rolling average), or 1,100,000 tons of clinker during any consecutive 12-month period.
  - ii. Any 12-month rolling total of emissions of any of the pollutants listed below that exceeded its facility-wide BACT emission limit:

Pollutant	Tons
Sulfur dioxide	220
Nitrogen oxides	825
Carbon monoxide (CO)	1595.0

Volatile organic compounds (VOC)	80
Particulate matter (PM)	76.6
Particulate matter less than 10 microns (PM <sub>10</sub> )	76.6
Particulate matter less than 2.5 microns (PM <sub>2.5</sub> )	18.5
Greenhouse Gases (GHGs) (in CO <sub>2</sub> e)	1,045,000

- iii. Firing of fuel(s) other than those authorized by Conditions 3.2.5 and 3.2.7 in the in-line kiln/raw mill or the air heater.
  - iv. Firing of fuel(s) prohibited by Condition 3.2.8.
  - v. Each exceedance of any of the process-specific BACT emission standards in Conditions 3.3.1 and 3.3.2.
  - vi. Each exceedance of visible emission limit of 20% opacity in Condition 3.3.4 for any coal processing and conveying equipment, coal storage system, or coal transfer and loading system.
  - vii. Each exceedance of the 10% opacity limit in Condition 3.3.7 for each raw material, clinker, or finished product storage bin, conveying system transfer point; bagging system, bulk loading or unloading system, raw and finish mills, and raw material dryer.
  - viii. For Kiln 4K1.KC01: Each exceedance of the particulate matter, mercury, dioxins and furans, total hydrocarbon (THC) and Hydrogen chloride (HCl) limits in Condition 3.3.5a.
  - ix. For Clinker cooler 4R1.PQ01: Each exceedance of the particulate matter limit in Condition 3.3.5b.
  - x. Each exceedance of the opacity and THC limit in Condition 3.3.5c for each raw or finish mill.
  - xi. Any instance of firing any of the stationary emergency diesel engines subject to Condition 3.3.10 with diesel fuel that contains more than 0.0015% sulfur (15 ppm) by weight; contains either more than 35% by volume of aromatic content or has a cetane index of less than 40.
- c. Excursions: (means for the purpose of this condition and Condition 6.1.4, any departure from an indicator range or value established for monitoring consistent with any averaging period specified for averaging the results of the monitoring)

- i. Any failure to comply with any provision of the Operational and Maintenance Plan developed in accordance with Condition 5.2.1.
  - ii. Any failure to comply with any of the applicable monitoring provisions required for 40 CFR 63, Subpart LLL in Conditions 5.2.2 through 5.2.11.
  - iii. Any failure to comply with any of the applicable monitoring provisions required for 40 CFR 60, Subpart CCCC in Conditions 5.2.12 through 5.2.24.
  - iv. For the Baghouses specified in Condition 5.2.28, any two consecutive required daily determinations of visible emissions that require action in accordance with 5.2.28(a) or 5.2.28(b).
  - v. Any instance in which the visual inspection of VE required by Condition 5.2.28 was not performed.
  - vi. Any visible emissions, mechanical failure, or malfunction discovered during the walk through described in Condition 5.2.29 that are not eliminated or corrected within 24 hours of first discovering the visible emissions, mechanical failure, or malfunction.
  - vii. Each instance of failure to calibrate thermocouples, other temperature sensors, or CEMS.
- 6.2.1 GHG Emissions Reporting - In addition to the information required by 40 CFR 98.3(c), each annual report must contain the information specified below. If a CEMS is used to measure CO<sub>2</sub> emissions, the Permittee must report the relevant information required by 40 CFR 98.36(e)(2)(vi) and the following information:  
[40 CFR 98.86, 40 CFR 52.21-BACT]
- a. Monthly clinker production from each kiln at the facility.
  - b. Annual facility clinker and cement production.
  - c. Number of kilns and number of operating kilns.
  - d. Monthly CO<sub>2</sub> emission (ton CO<sub>2</sub>/ton clinker)
  - e. Annual CO<sub>2</sub> emission (ton CO<sub>2</sub>/ton clinker)
- 6.2.2 The Permittee shall include the following information in the quarterly report required in Condition 6.1.4:



- a. The 30 kiln-operating day total of CO, NO<sub>x</sub>, SO<sub>2</sub>, VOC, and CO<sub>2</sub> emissions (in tons/metric tons) for each working day during the reporting period.
- b. The 12-month rolling total of CO, NO<sub>x</sub>, SO<sub>2</sub>, THC/VOC, and CO<sub>2</sub> emissions (in tons/metric tons) for each period of 12-consecutive months during the reporting period.
- c. The 30 kiln-operating day total output of clinker from the kiln (in tons), and 12-month rolling total output of clinker from the kiln (in tons) for each period of 12-consecutive months during the reporting period.

**Comment 2**

Condition 3.2.21 cites 40 CFR 63.1356(a). The draft permit should omit the “(a),” as this provision does not have a subparagraph.

**EPD Response:**

Changes to Condition 3.2.21 has been made in accordance to the suggestion.

- 3.2.21 All the sources subject to 40 CFR 63 Subpart LLL at this site are exempt from any otherwise applicable new source performance standard (NSPS) contained in 40 CFR Part 60, Subpart F, “*Standard of Performance for Portland Cement Plants*” or 40 CFR Part 60, Subpart OOO, “*Standard of Performance for Nonmetallic Mineral Processing Plants*”.  
[40 CFR 63.1356]

**Comment 3**

Condition 3.2.23 cites 40 CFR 60.4211(e); this does not appear to reflect the text in the draft permit. A more appropriate citation may be 40 CFR 60.4211(f).

**EPD Response:**

Changes to Condition 3.2.23 has been made in accordance to the suggestion.

- 3.2.23 The accumulated maintenance check and readiness testing time for the emergency stationary diesel engine/generator shall not exceed 100 hours per year. The Permittee may petition the Division for approval of additional hours for maintenance checks and readiness testing, but a petition is not required if the Permittee maintains records indicating that Federal, State, or local standards require maintenance and testing of the emergency stationary diesel engine/generator beyond 100 hours per year. Any operation other

than emergency power generation, and maintenance check and readiness testing is prohibited.  
[40 CFR 60.4211(f)]

#### Comment 4

Condition 3.3.8a. contains references to paragraphs b.i. and b.ii. These paragraphs do not exist in this condition. It may be more appropriate for the draft permit to reference a.i. and a.ii.

#### EPD Response:

Changes to Condition 3.3.8a. has been made in accordance to the suggestion.

3.3.8 The Permittee shall comply with the provisions of 40 CFR 60 Subpart OOO, “Standards of Performance for Nonmetallic Mineral Processing Plants,” for all subject equipment {for reference, see listing in Section 3.1}. In particular, for equipment in fixed or portable nonmetallic mineral processing plants which is subject to 40 CFR 60 Subpart OOO, the Permittee shall comply with the following for each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, enclosed truck or railcar loading station:  
[40 CFR 60.672] [Vault NS-017-EL, 02/10]

- a. The Permittee shall not discharge or cause the discharge into the atmosphere, from each affected facility/source constructed, modified, or reconstructed on or after April 22, 2008, any
  - i. fugitive emissions (including those escaping capture systems) exhibiting greater than 7 percent opacity except for any crusher that does not use a capture system, which shall not exhibit fugitive emissions greater than 12 percent opacity.
  - ii. stack emissions from capture systems feeding a dry control device which contain particulate matter in excess of 0.032 g/dscm (0.014 grains/dscf) except for individually enclosed storage bins.
  - iii. Any dry control device that controls emissions from an individually enclosed storage bin is exempt from the stack PM concentration limit (and associated performance testing) in paragraph (a)(ii) but shall not exhibit greater than 7 percent stack opacity.

In particular, for any transfer point on a conveyor belt or any other affected facility enclosed in a building, each enclosed affected facility

shall comply with the emission limits in paragraphs a.i. and a.ii., or the building shall comply with the following emission limits:

- iv. Fugitive emissions from the building openings (except vents with mechanically induced air flow for exhausting PM emissions from the building) shall not exceed 7 percent opacity.
  - v. PM emissions from any building vent with mechanically induced air flow for exhausting PM emissions shall not contain particulate matter in excess of 0.032 g/dscm (0.014 grains/dscf).
- b. Truck dumping of nonmetallic minerals into any screening operation, feed hopper, or crusher is exempt from the requirements of paragraph a.

#### **Comment 5**

Condition 4.2.10 references 40 CFR 63.1349(b)(4). EPA believes that the appropriate reference is 40 CFR 63.1349(b)(6).

#### **EPD Response:**

Changes to Condition 4.2.10 has been made in accordance to the suggestion.

4.2.10 *HCl emissions tests.* The Permittee must conduct performance testing by one of the following methods:  
[40 CFR 63.1348(a)(6), 40 CFR 63.1349(b)(6)]

- a. If the kiln is equipped with a wet scrubber, tray tower or dry scrubber, performance testing must be conducted using Method 321 unless a CEMS that meets the requirements 40 CFR 63.1350(l)(1) is installed. Testing must be conducted for the raw mill on and raw mill off conditions. The Permittee must establish site specific parameter limits by using the CPMS required in 40 CFR 63.1350(l)(1). For a dry scrubber, measure and record the sorbent injection rate in intervals of no more than 15 minutes during the HCl test. Compute and record the 24-hour average sorbent injection rate and average sorbent injection rate for each sampling run.
- b. If the kiln is not controlled by a wet scrubber, tray tower or dry sorbent injection system, the Permittee must operate a CEMS in accordance with the requirements of 40 CFR 63.1350(l)(1). See 40 CFR 63.1348(a). The initial compliance test must be based on the 30 kiln operating days that occur after the compliance date of this rule in which the affected source operates using an HCl CEMS. Hourly HCl concentration data must be obtained according to 40 CFR 63.1350(l).

- c. *SO<sub>2</sub> CEMS surrogate for HCl.* As an alternative, SO<sub>2</sub> emissions may be monitored using a CEMS in accordance with the requirements of 40 CFR 63.1350(l)(3). The Permittee must establish a SO<sub>2</sub> operating limit equal to the average recorded during the HCl stack test where the HCl stack test run result demonstrates compliance with the emission limit. This operating limit will apply only for demonstrating HCl compliance. If SO<sub>2</sub> emissions are monitored using a CEMS to demonstrate HCl compliance, follow the procedures in 40 CFR 63.1349(b)(8)(i) through (ix) and in accordance with the requirements of 40 CFR 63.1350(l)(3). The Permittee must establish an SO<sub>2</sub> operating limit equal to the average recorded during the HCl stack test.

#### **Comment 6**

Condition 4.2.25 references 40 CFR 60.254; however, a better reference may be 40 CFR 60.255.

#### **EPD Response:**

Changes to Condition 4.2.25 has been made in accordance to the suggestion.

- 4.2.25 Within 60 days after achieving the maximum production rate at which the affected source(s) will be operated, but no later than 180 days of the initial startup of the affected source(s), the Permittee shall use Method 9 and the procedures in 40 CFR 60.11 to demonstrate compliance with the visible emission standard in Condition 3.3.4.  
[40 CFR 60.255]

#### **Comment 7**

For each pollutant listed in Condition 5.2.31 it states “lb/ton clinker - 30 kiln-operating day average.” The condition does not contain any numerical limits. It is unclear if this omission was intentional.

#### **EPD Response:**

The term “lb/ton clinker - 30 kiln-operating day average” is only used to define the units in which the CEMSs data are to be reported. As such, a numeric emission limit is not intended in Condition 5.2.31. However, following internal discussions, it is decided that numerical emission limits will be included in Condition 5.2.31 for clarification purposes.

- 5.2.31 The Permittee shall install, calibrate, maintain, and operate CEMS to continuously monitor and record the indicated BACT pollutants discharged from the in-line kiln/raw mill according to manufacturer’s

specifications and/or the requirements under pertinent EPA or state rules, and in a manner sufficient to demonstrate continuous compliance with the applicable emission standards in this permit. Each CEM shall also meet performance specifications of the Division's monitoring requirements if applicable. The Permittee shall notify the Division within one working day of discovering emissions in excess of a CEM emission standard over a specified averaging period. BACT pollutant monitoring requirements shall comply with 40 CFR 60.13.

- a. **CO:** 2.9 lb/ton clinker - *30 kiln-operating day average*. The CO CEM shall meet the requirements of Performance Specification 4 or 4A in Appendix B of 40 CFR 60. The required RATA tests shall be performed using EPA Method 10 in Appendix A of 40 CFR 60. Quality assurance procedures shall conform to the requirements of Appendix F in 40 CFR 60.
- b. **NO<sub>x</sub>:** 1.5 lb/ton clinker (2.5 lb/ton of clinker during initial kiln startup period) - *30 kiln-operating day average*. The NO<sub>x</sub> CEM shall meet the requirements of Performance Specification 2 or 2A in Appendix B of 40 CFR 60. The required RATA tests shall be performed using EPA Method 7 or 7E in Appendix A of 40 CFR 60. Quality assurance procedures shall conform to the requirements of Appendix F in 40 CFR 60.
- c. **SO<sub>2</sub>:** 0.4 lb/ton clinker - *30 kiln-operating day average*. The SO<sub>2</sub> CEM shall meet the requirements of Performance Specification 2 in Appendix B of 40 CFR 60. The required RATA tests shall be performed using EPA Method 6 or 6C in Appendix A of 40 CFR 60. Quality assurance procedures shall conform to the requirements of Appendix F in 40 CFR 60.
- d. **VOC:** 0.15 lb/ton clinker - *30 kiln-operating day average*. The THC CEM shall meet the requirements of Performance Specification 8A in Appendix F of 40 CFR 60. The permittee may operate a methane/non-methane CEMS to determine the VOC emissions. The Permittee can demonstrate by annual Method 25A test that a fraction of THC is methane instead of operating methane/non-methane CEMS.
- e. **CO<sub>2</sub>:** 0.95 ton/ton clinker - *annual average*. The CO<sub>2</sub> CEM shall meet the requirements of Performance Specification 3 in Appendix B of 40 CFR 60. The required RATA tests shall be performed using EPA Method 3A in Appendix A of 40 CFR 60. Quality assurance procedures shall conform to the requirements of Appendix F in 40 CFR 60.

The Permittee shall perform quarterly accuracy determinations and daily calibration drift tests on all BACT-required CEM, including the oxygen and flow CMS, according to Procedure 1 in Appendix F of 40 CFR Part 60.

### **US Cement, LLC COMMENTS**

Comments were received from Upasna B. Rai, a consultant from Koogler and Associates, Inc. working on behalf of US Cement, LLC, by email on June 10, 2020.

#### **Comment 1**

Cover Page: Revise the mailing address from “4014 NW 13th Street Gainesville, Florida 32609” to “PO Box 673541 Marietta, GA 30006”.

#### **EPD Response.**

The change was made.

#### **Comment 2**

Overall Facility Process Description: Remove off-specification from “on-specification and off-specification used oil fuels” as off-specification used oil is excluded by Condition 3.2.8.

#### **EPD Response.**

The change was made.

### **1.3 Overall Facility Process Description**

US Cement, LLC is a new/greenfield dry process Portland cement plant capable of producing 1.1 mmt/yr of clinker. The plant consists mainly of an on-site limestone-clay quarry, raw material handling and storage, kiln feed preparation with an in-line raw mill, a dry process rotary kiln coupled with preheater and calciner, a clinker cooler, a coal mill, a finish mill, and cement storage, packaging and shipping operations.

The production process begins with quarrying of limestone and clay, and crushing of the limestone. Then the raw materials such as limestone, clay, fly ash and other additives are mixed according to specification, then ground and dried in the raw mill. The powdery material produced by the raw mill, referred to as dry kiln feed or raw meal, is then conveyed into the preheater, calciner, and kiln in turn, for pyroprocessing into cement clinker nodules. The clinker nodules are cooled in the clinker cooler and then mixed and ground with limestone, gypsum and/or other additives as necessary in the finish mill to produce Portland cement. The design capacity of the pyroprocessing system is 1.1 million tons (mmt) per year of clinker, with a design peak production rate of 140 tons per hour of clinker (30-kiln operating day rolling average). The design operating schedule is 8760 hours/year. These design rates are requested to be enforceable permit limits. The peak design rate of 140 ton/hr (30-kiln operating day rolling average) is 12 percent greater than the annual limit to allow periods of operational downtime, but still allow the kiln system to achieve its

12-month rolling production rate of 1.1 mmton/yr. Cement produced is stored or packaged as necessary and distributed via both truck and rail.

Fuel authorized for the kiln include, but are not limited to natural gas, coal, petroleum coke, fuel oils, propane, on-specification used oil fuels, tire-derived fuel, plastics, roofing materials, agricultural biogenic materials, cellulosic biomass, carpet-derived fuel, alternative fuel mix, biosolids, and engineered fuel. A coal mill with a design grinding rate of 20 tons per hour, with a requested maximum operating schedule of 8760 hours per year is used for coal and petroleum coke preparation. The mill design rate allows for downtime of the coal/petcoke mill when fuel is needed for the kiln.

The facility uses ammonia (NH<sub>3</sub>) solution-injection based Selective Non-Catalytic Reduction (SNCR) in combination with staged and controlled combustion (SCC) and low NO<sub>x</sub> burners to minimize NO<sub>x</sub> emissions from the pyroprocessing processes. Fabric filters/baghouses are employed to capture PM emitted from various process and material handling units in the plant. Wet suppression/water spray and other precautions are utilized as necessary to reduce fugitive emissions from the quarry operations and the material handling processes. Plant operating practices, plant design and materials management are proposed as emission control strategies for SO<sub>2</sub>, CO, VOC/THC and HCl.

### **Comment 3**

Conditions 3.2.6a and 4.2.30: It is unclear why this performance testing is required. The kiln will use CEMS for all regulated pollutants other than D/F, and PM will be continuously monitored by PM-CPMS.. D/F emissions are a clear direct impact of kiln exhaust gas conditions (temperature and residence time) and not fuel type; as has been well proven and documented. The PM generated from fuel is a minor fraction of PM input to the kiln baghouse; with recirculated kiln dust and raw mill dust creating the major fractions of PM.

Furthermore, it has been well documented by studies conducted by the Portland Cement Association (PCA), and others, that emissions of all pollutants from modern, dry-process Portland cement plants are a function of raw material characteristics and plant operating conditions; not specific fuels fired to the kiln/calcliner. This matter was discussed in detail in the report supporting the permit application submitted to EPD.

US Cement has no issue with informing EPD of its intent to use an alternative fuel not previously used, or its intent to use an alternative fuel at a firing rate greater than previously used. However the requirement for conducting performance tests (emission measurements) before utilizing, or increasing the use of alternative fuels is completely unjustified given the fact that emissions are not a function of fuel type, and the fact that emissions are continuously monitored with CEMS and CPMS.

This same comment applies to Condition 3.2.6.b, immediately following.

**EPD Response.**



Following discussion among SSPP, it has been decided that the suggestions provided by the facility for Conditions 3.2.6 and 4.2.30 will be implemented. As such, the facility will either provide EPD with documentation demonstrating that the fuel(s) in question will not adversely affect emissions of a regulated pollutant or shall conduct a performance test(s) for PM/PM10 and dioxin/furans if operating as a Subpart LLL kiln, or for PM/PM10, dioxin/furans, cadmium and lead if operating as a Subpart CCCC kiln. During the Performance Test period, the emission rates of SO<sub>2</sub>, NO<sub>x</sub>, CO, THC/VOC, mercury and HCl shall be determined by CEMSs.

3.2.6 The Permittee shall demonstrate compliance with the usage requirements for any of the above or combination of the above authorized fuels with the Division before using the fuel in the in-line kiln/raw mill in accordance with the following procedures/requirements:

- a. Firing of an authorized non-hazardous liquid fuel shall not exceed the percentage of the total heat input of the in-line kiln/raw mill that was utilized during the most recent Division-approved performance test for firing the liquid fuel, unless otherwise approved in writing by the Division in accordance with Condition 4.2.30.
- b. Firing of an authorized non-hazardous solid fuel shall not exceed the percentage of the calciner/kiln burner capacity that was utilized during the most recent Division-approved performance test for firing the solid fuel, unless otherwise approved in writing by the Division in accordance with Condition 4.2.30. Dry coal/fly ash may be injected directly into the calciner or kiln without prior Division approval.
- c. The “on-specification” used oil fuel shall meet the following specifications:
  - i. Arsenic shall not exceed 5.0 ppm
  - ii. Cadmium shall not exceed 2.0 ppm
  - iii. Chromium shall not exceed 10.0 ppm
  - iv. Lead shall not exceed 100.0 ppm
  - v. Total halogens shall not exceed 1000 ppm; and
  - vi. Flash point shall not be less than 100°F.

“On-specification” used oil fuel may be generated from on-site sources or purchased from a vendor, and shall not contain any PCB’s.

- 4.2.30 Before firing any fuel(s) which was not used during any previous Division-approved performance tests and which may adversely affect the emissions of a regulated air pollutant from the in-line kiln/raw mill, the Permittee shall either provide the Division with documentation approved by the Division demonstrating that the fuel(s) in question will not adversely affect emissions of a regulated pollutant or shall conduct a performance test(s) for PM/PM10 and dioxin/furans if operating as a Subpart LLL kiln, or for PM/PM10, dioxin/furans, cadmium and lead if operating as a Subpart CCCC kiln to determine the impact of the combustion of the fuel on the emissions of the relevant pollutant, using the applicable testing method(s) and/or procedure(s) in this permit and/or pertinent Federal and State regulations. During the Performance Test period, the emission rates of SO<sub>2</sub>, NO<sub>x</sub>, CO, THC/VOC, mercury and HCl shall be determined by CEMSs. A testing plan(s) shall be submitted to the Division for approval at least 60 days before the testing.  
[40 CFR 52.21 & 391-3-1-.03(2)(c)]

**Comment 4**

Condition 3.2.15: Is this necessary? What is the purpose of a water cannon?

**EPD Response.**

Based on discussion within SSPP, it has been determined that the water cannon is not needed for the facility as described in the application. Therefore, references to the water cannon on the water truck has been removed.

- 3.2.15 Except during natural wet conditions, the Permittee shall have, maintain, and operate at all times when truck travel is occurring on unpaved roads, a water truck equipped to effectively spray the unpaved roads which are being used, including roads used for in-plant travel, customer travel or construction travel, and this truck shall be equipped with a working water cannon.

**Comment 5**

Condition 3.2.16: US Cement has proposed to use a high-efficiency vacuum sweeper truck. This method of controlling fugitive PM emissions from paved roadways actually removes particles which could become airborne. The application of water, either by a sprinkler system or a water truck, suppresses the emissions of fugitive PM, but allows this material to be tracked elsewhere within the plant, and onto public roads outside of the plant where it is more likely to become airborne at some future time.

**EPD Response.**

The changes were made.

- 3.2.16 Except during natural wet conditions, the Permittee shall operate a high-efficiency vacuum sweeper truck on a regular schedule at all times when truck travel is occurring on paved roads, including roads used for in-plant travel and customer travel.

#### **Comment 6**

Condition 3.3.1: There is no emission limit for condensable PM; hence, there is no reason to test for it.

#### **EPD Response.**

For Condition 3.3.1 (the table), if the intention is for PM10 and PM2.5 emissions not to exceed the limit, then condensables (tested via Method 202) would have to be included. PM10 and PM2.5 as defined by EPA includes condensables. As such, the suggestion to remove Method 202 from Compliance Method section of the table is not accepted by EPD.

#### **Comment 7**

Condition 4.1.3: Addition of Method 5I to 4.1.3e for the determination of filterable PM emissions. Addition of Method 30A and Method 30B to 4.1.3m as acceptable alternatives to Method 29 for the determination of Hg emissions. Remove Method 202 for the determination of PM10 emissions (See comment 6 above)

#### **EPD Response.**

The addition of Method 5I to 4.1.3e, and Method 30A and Method 30B to 4.1.3m is accepted by EPD and made to the permit. The removal of Method 202 for the determination of PM10 emissions is not acceptable as PM10 as defined by EPA includes condensables.

- 4.1.3 Performance and compliance tests shall be conducted and data reduced in accordance with applicable procedures and methods specified in the Division's Procedures for Testing and Monitoring Sources of Air Pollutants. The methods for the determination of compliance with emission limits listed under Sections 3.2, 3.3, and 3.4 are as follows:
- a. Method 1 or 1A for the determination of sample point locations;
  - b. Method 2 for the determination of flow rate;
  - c. Method 3, 3A, or 3B for the determination of stack gas molecular weight;

- d. Method 4 for the determination of stack gas moisture;
- e. Method 5 or 5I for the determination of filterable PM emissions;
- f. Method 6 or 6C for the determination of SO<sub>2</sub> concentration;
- g. Method 7 or 7E for the determination of NO<sub>x</sub> concentration;
- h. Method 9 and the procedures contained in Section 1.3 of the above reference document for the determination of opacity;
- i. Method 10 for the determination of CO concentration;
- j. Method 22 for the visual determination of fugitive visible emissions;
- k. Method 23 for the determination of dioxin and furan (D/F) emissions;
- l. Method 25A for the determination of total gaseous methane and nonmethane organic emissions as propane;
- m. Method 29 of 40 CFR Part 60 for the determination of Cd, Pb, and Hg emissions. ASTM D6784–02, Standard Test Method for Elemental, Oxidized, Particle-Bound and Total Mercury Gas Generated from Coal-Fired Stationary Sources (Ontario Hydro Method), Method 30A, and/or Method 30B, are acceptable alternatives to Method 29 (portion for mercury only),
- n. Method 201 or 201A in conjunction with Method 202 for the determination of PM<sub>10</sub> emissions, and
- o. Method 321 for determination of hydrochloric acid (HCl) emission.

Minor changes in methodology may be specified or approved by the Director or his designee when necessitated by process variables, changes in facility design, or improvement or corrections that, in his opinion, render those methods or procedures, or portions thereof, more reliable.  
[391-3-1-.02(3)(a)]

#### **Comment 8**

Condition 4.1.5: Insert “by more than 10 percent” to Condition 4.1.5 so it becomes “Should production rate(s) increase by more than 10 percent above the rate(s) at which the acceptable

performance test(s) was made, the Division may require that the relevant emission control system(s) be tested for compliance at a higher production rate”.

**EPD Response.**

For Condition 4.1.5, the intention is to ensure that EPD has the necessary flexibility to ensure that the relevant emission control system(s) be tested for compliance at a higher production rate. Consequently, EPD has reserved the right to determine whether an increase in production rate constitutes a need for additional testing. The suggestion is not accepted.

**Comment 9**

Condition 4.2.16: Add “or must use a SO<sub>2</sub> CEMS as a surrogate monitor for HCl in accordance with Condition 4.2.10.c.” and “Alternatively, a SO<sub>2</sub> CEMS can be used as a surrogate for continuously monitoring HCl emissions in accordance with the requirements of Condition 4.2.10.c.” to this condition.

**EPD Response.**

The changes were made.

- 4.2.16 *Cd/Pb, CO, D/F tests and HCl CEMs.* The Permittee must conduct an annual performance test for cadmium, lead, carbon monoxide, dioxins/furans and hydrogen chloride as listed in Condition 3.3.2, unless CEMS are used to demonstrate initial and continuous compliance. If acid gas wet scrubber or dry scrubber is not used, the Permittee must determine compliance with the hydrogen chloride emissions limit using a HCl CEMS according to the requirements in 40 CFR 60.2145(j)(1) or must use a SO<sub>2</sub> CEMS as a surrogate monitor for HCl in accordance with Condition 4.2.10.c.

For kilns not equipped with a wet scrubber or dry scrubber, the Permittee must install, calibrate, maintain, and operate a CEMS for monitoring hydrogen chloride emissions discharged to the atmosphere, as specified in 40 CFR 60.2145(j), and record the output of the system. The Permittee may substitute use of a HCl CEMS for conducting the HCl initial and annual testing with EPA Method 321 at 40 CFR part 63, appendix A. Alternatively, a SO<sub>2</sub> CEMS can be used as a surrogate for continuously monitoring HCl emissions in accordance with the requirements of Condition 4.2.10.c.

[40 CFR 60.2165(g), 40 CFR 60.2145(j)]

**Comment 10**

Condition 5.2.5: The permit taking should have the option of complying with either the THC emission limit or the organic HAP emission limit.

**EPD Response.**

The changes were made to 5.2.5b according to suggestions to allow for demonstration of compliance with either the THC emission limit or the organic HAP emission limit.

5.2.5 *THC CEMS Monitoring.* The Permittee must operate a THC CEMS in accordance with the requirements in 40 CFR 63.1350(i). For the purposes of conducting the accuracy and quality assurance evaluations for CEMS, the THC span value (as propane) is 50 to 60 ppmvw and the reference method (RM) is Method 25A of appendix A to part 60 of this chapter. Use the THC CEMS to conduct the initial compliance test for the first 30 kiln operating days of kiln operation. See 40 CFR 63.1348(a). If the THC level exceeds by 10 percent or more of the site-specific THC emissions limit, the Permittee must;

- a. As soon as possible but no later than 30 days after the exceedance, conduct an inspection and take corrective action to return the THC CEMS measurements to within the established value; and
- b. Within 90 days of the exceedance, or at the time of the 30 month compliance test, whichever comes first, conduct another performance test to demonstrate compliance with the THC emission limit, or conduct a performance test to demonstrate compliance with the organic HAP limit and to verify or re-establish the site-specific THC emissions limit.

An emissions monitoring plan shall be developed in accordance with 40 CFR 63.1350(p)(1) through (p)(4) for this system.  
[40 CFR 63.1348(a)(4), 40 CFR 63.1349(b)(4)]

**Comment 11**

Condition 6.2.39 (formerly 6.2.38): This should be corrected to “CEDRI”. Webfire provides emission factor tables.

**EPD Response.**

The change was made.

- 6.2.39 For the purpose of reports required under 40 CFR 60.7(c), any Permittee subject to the provisions of Subpart Y shall report semiannually (or as a

part of the quarterly report in Condition 6.1.4) periods of excess emissions as follow:

- a. All 6-minute average opacities that exceed the applicable standard.
- b. The Permittee of an affected facility shall submit the results of initial performance tests consistent with the provisions of 40 CFR 60.8.

Within 60 days after the date of completing each performance evaluation conducted to demonstrate compliance with this subpart, the Permittee of the affected facility must submit the test data to EPA by successfully entering the data electronically into CEDRI. For performance tests that cannot be entered into CEDRI (*i.e.*, Method 9 of appendix A-4 of this part opacity performance tests) the Permittee of the affected facility must mail a summary copy to United States Environmental Protection Agency; Energy Strategies Group; 109 TW Alexander DR; mail code: D243-01; RTP, NC 27711.

[40 CFR 60.258]

#### **Comment 11**

Section 8.3 Other General Provisions: Move the subheading “State Only Enforceable Conditions” from above 8.3.2 to above 8.3.1.

#### **EPD Response.**

The change was not made. Only Condition 8.3.2 is a state only enforceable condition, the rest of the section is not.

#### **Additional Comments**

In addition to the facility comments listed above, there were many minor wording, grammatical, and stylistic changes that the facility’s consultants suggested. Any minor changes not mentioned above should be presumed to have been accepted and incorporated into the permit.

## **APPENDIX A**

### **AIR QUALITY PERMIT**

**3241-153-0075-P-01-0**



## **APPENDIX B**

### **WRITTEN COMMENTS RECEIVED DURING COMMENT PERIOD**